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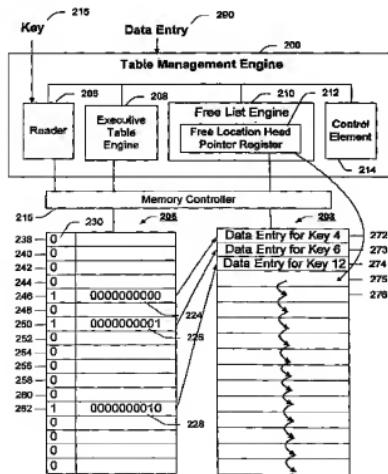
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(54) Title: VLAN TABLE MANAGEMENT FOR MEMORY EFFICIENT LOOKUPS AND INSERTS IN HARDWARE-BASED
PACKET SWITCHES

(57) **Abstract:** Described herein is a method and apparatus for memory efficient fast VLAN lookups and inserts in hardware-based packet switches. A table management engine (TME) is introduced into the switches to accelerate data searches and management. The TME manages a memory which is divided into two tables, one containing the data entries ("data entry table" 203), one containing the pointers and validity bits ("pointer table" 205). The TME comprises a reader/hasher (206), an executive table engine (208), a free list engine (210) and a control element (214). The reader/hasher obtains content from a key, which can be a VLAN rule. The executive table engine uses the key content to address a pointer location in memory to retrieve the data. The executive table engine is also responsible for writing /deleting data into the memory and for pointers management.

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